CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No : CTCE/BBMP/KRIDL/W No.02/CSR-01/238a/CEMENT/2016-17 Date: 09.01.2017

TEST REPORT ON CEMENT

* Customer	:	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Construction of culverts and improvements of drains at Puttenahalli KHB Colony in Ward No.02 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE(YNK.D)/W.O/100/2016-17 Dated: 05.01.2017
* Sample ID	:	Cement – Sample 3
Sample Received on	:	05.01.2017
Period of Testing	:	05.01.2017 to 09.01.2017

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-2013
1	Standard Consistency	IS-4031 (Part -4) 1988 (RA-2014)	27.50 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) 1988 (RA-2014)	155 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) 1988 (RA-2014)	475 Minutes	Not More than 600 Minutes
3	Soundness by Le Chartlier Method	IS-4031 (Part-3) 1988 (RA-2014)	1 mm	Not more than 10mm

*Information is furnished by the Customer/Representative.

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Job No : CTCE/BBMP/KRIDL/W.No.02/CSR-01/238a/SAND-Gradation/2016-17 09.01.2017

TEST REPORT ON SIEVE ANALYSIS OF FINE AGGREGATES

* Customer	: **Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	: **Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	: Construction of culverts and improvements of drains at Puttenahalli KHB Colony in Ward No.02 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	: BBMP/EE(YNK.D)/W.O/100/2016-17 Dated: 05.01.2017
* Sample ID	: Fine Aggregates – Sample 3
Technical Reference	: IS : 2386 (Part 1) - 1963 (RA-2011)
Sample Received On	: 05.01.2017
Date of Testing	: 09.01.2017

Total Wt. of Aggregates in gms = **1000**

IS Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2011)			
		Zone-I	Zone-II	Zone-III	Zone-IV
10	100	100	100	100	100
4.75	94.50	90-100	90-100	90-100	95-100
2.36	79.00	60-95	75-100	85-100	95-100
1.18	55.00	30-70	55-90	75-100	90-100
600 Micron	27.50	15-34	35-59	60-79	80-100
300 Micron	15.00	5-20	8-30	12-40	15-50
150 Micron	3.50	0-10	0-10	0-10	0-15

* Information is furnished by the Customer/Representative

Remarks : This sample is under Zone-I specific limits.

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Job No : CTCE/BBMP/KRIDL/W.No.02/CSR-01/238a/AGG/GR/2016-17 09.01.2017

TEST REPORT ON SIEVE ANALYSIS OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Construction of culverts and improvements of drains at Puttenahalli KHB Colony in Ward No.02 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE(YNK.D)/W.O/100/2016-17 Dated: 05.01.2017
* Sample ID	:	Coarse Aggregates (40mm) – Sample 3
Technical Reference	:	IS : 2386 (Part 1) -1963 (RA-2016)
Sample Received on	:	05.01.2017
Date of Testing	:	09.01.2017

Total Wt. of Aggregates in gms= **5000**

IS Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2016)	
		Graded	Single Sized
80	100	100	-
63	100	-	100
40	97.70	95-100	85-100
20	32.70	30-70	0-20
10	13.00	10-35	0-5
4.75	3.50	0-5	-

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Remarks : This sample is under graded specific limits.

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Job No.: CTCE/BBMP/W.No.02/KRIDL/CSR-01/238a/CC Solid Block/2016-17 09.01.2017

TEST REPORT ON COMPRESSIVE STRENGTH OF SOLID CONCRETE BLOCKS

* Customer	:	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Construction of culverts and improvements of drains at Puttenahalli KHB Colony in Ward No.02 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE(YNK.D)/W.O/100/2016-17 Dated: 05.01.2017
Technical Reference	:	IS: 2185 (Part 1) - 2005
Size of Blocks	:	400mm x 200mm x 200mm
Cross Sectional Area	:	80000 mm^2
No. of Blocks Tested	:	08
Sample Received on	:	05.01.2017
Date of Testing	:	09.01.2017

Sl.No.	Block ID	Wt. in Kg	Failure load (KN)	Compressive strength (N/mm^2)	Requirement as per IS 2185 (Part 1) - 2005
1	Block 1	35.48	262.5	3.28	Minimum required Compressive Strength of Individual Units 3.20 N/mm^2
2	Block 2	36.23	260.4	3.26	
3	Block 3	36.52	259.7	3.25	
4	Block 4	35.12	262.3	3.28	
5	Block 5	35.47	260.5	3.26	
6	Block 6	36.25	263.4	3.29	
7	Block 7	34.89	262.8	3.29	
8	Block 8	35.23	260.3	3.25	

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Job No. CTCE/BBMP/W.No.02/KRIDL/CSR-01/238a/C.C.Core/2016-17 09.01.2017

TEST REPORT ON CONCRETE CORE

* Name of Customer : **Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Name of Agency : **Technical Manager (West),** KRIDL, Bangalore.
* Name of work : Construction of culverts and improvements of drains at Puttenahalli KHB Colony in Ward No.02 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference BBMP/EE(YNK.D)/W.O/100/2016-17 Dated: 05.01.2017
Technical Reference : IS:516-1959 (Reaffirmed 2008), SP-24:1983.
Sample ID : Kerb Stone
Sample Received on : 05.01.2017
Date of Testing : 09.01.2017

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	78.00	0.388	2533.42	1.56	0.952	24.55	12.50	13.50	14.18	17.72
2	50.00	80.00	0.402	2559.21	1.60	0.957	25.60	13.04	14.08	13.47	16.84
3	50.00	79.00	0.396	2552.93	1.58	0.955	26.30	13.39	14.47	13.81	17.26

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Job No.: CTCE/BBMP/KRIDL/W.No.02/Steel/2016-17 09.01.2017

TEST REPORT ON REINFORCEMENT STEEL

* Customer	:	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of work	:	Construction of culverts and improvements of drains at Puttenahalli KHB Colony in Ward No.02 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE(YNK.D)/W.O/100/2016-17 Dated: 05.01.2017
* Samples ID	:	12 mm Bar
Technical Reference	:	IS: 1786-2008 (RA-2013)
Date of Testing	:	09.01.2017

Sl No	Nominal size (dia) (mm)	Mass per metre (Kg/mtr)	TENSILE STRENGTH			Bend Test	Rebend Test
			0.20% proof stress/Yield stress N/mm2	Tensile strength (Ultimate stress) N/mm2	Elongation percent gauge length		
1	12	0.89	514	516	13.65	O.K	O.K

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Job No. CTCE/BBMP/W.No.02/KRIDL/CSR-01/238a/Cube/2016-17 19.01.2017

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	:	Construction of culverts and improvements of drains at Puttenahalli KHB Colony in Ward No.02 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE(YNK.D)/W.O/100/2016-17 Dated: 05.01.2017
* Sample ID	:	Cement Concrete
Technical Reference	:	IS: 516-1959 (RA-2013)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{15}
Compressive Strength as on	:	7^{th} day
Sample Received on	:	19.01.2017

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	12.01.2017	19.01.2017	8.263	252.3	11.21
2	12.01.2017	19.01.2017	8.352	268.9	11.95
3	12.01.2017	19.01.2017	8.475	277.4	12.33

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Job No. CTCE/BBMP/W No.02/KRIDL/CSR-01/238a/Cube/2016-17 19.01.2017

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	:	Construction of culverts and improvements of drains at Puttenahalli KHB Colony in Ward No.02 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE(YNK.D)/W.O/100/2016-17 Dated: 05.01.2017
* Sample ID	:	Cement Concrete
Technical Reference	:	IS: 516-1959 (RA-2013)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{15}
Compressive Strength as on	:	7^{th} day
Sample Received on	:	19.01.2017

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	12.01.2017	19.01.2017	8.236	274.2	12.19
2	12.01.2017	19.01.2017	8.154	266.5	11.84
3	12.01.2017	19.01.2017	8.374	290.3	12.90

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Job No. CTCE/BBMP/W.No.02/KRIDL/CSR-01/238a/Cube/2016-17 19.01.2017

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	:	Construction of culverts and improvements of drains at Puttenahalli KHB Colony in Ward No.02 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE(YNK.D)/W.O/100/2016-17 Dated: 05.01.2017
* Sample ID	:	Cement Concrete
Technical Reference	:	IS: 516-1959 (RA-2013)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{15}
Compressive Strength as on	:	7^{th} day
Sample Received on	:	19.01.2017

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	12.01.2017	19.01.2017	8.152	255.2	11.34
2	12.01.2017	19.01.2017	8.236	260.7	11.59
3	12.01.2017	19.01.2017	8.384	279.8	12.44

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Job No. CTCE/BBMP/W.No.02/KRIDL/CSR-01/238a/Cube/2016-17 24.01.2017

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	:	Construction of culverts and improvements of drains at Puttenahalli KHB Colony in Ward No.02 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE(YNK.D)/W.O/100/2016-17 Dated: 05.01.2017
* Sample ID	:	Covering Slab Drain Concrete
Technical Reference	:	IS: 516-1959 (RA-2013)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{15}
Compressive Strength as on	:	7^{th} day
Sample Received on	:	24.01.2017

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	17.01.2017	24.01.2017	8.452	288.7	12.83
2	17.01.2017	24.01.2017	8.263	272.9	12.13
3	17.01.2017	24.01.2017	8.374	254.6	11.32

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Job No.: CTCE/BBMP/W.No.02/KRIDL/CSR-01/238a/Cube/2016-17 27.01.2017

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	:	Construction of culverts and improvements of drains at Puttenahalli KHB Colony in Ward No.02 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE(YNK.D)/W.O/100/2016-17 Dated: 05.01.2017
* Sample ID	:	Drain Concrete
Technical Reference	:	IS: 516-1959 (RA-2013)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{20}
Compressive Strength as on	:	7^{th} day
Sample Received on	:	27.01.2017

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	20.01.2017	27.01.2017	8.263	339.2	15.08
2	20.01.2017	27.01.2017	8.158	328.5	14.60
3	20.01.2017	27.01.2017	8.345	356.3	15.84

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